

What is claimed is:

1. A method of forming a barrier metal in a semiconductor device,
comprising the steps of:

- 5 a) patterning a porous film on a base layer to form a via hole;
b) burying pores of the sidewall of the via hole with a CVD TiN film;
and
c) forming a barrier metal on the entire structure including the via hole.

10 2. The method as claimed in claim 1, wherein the step (b)
comprises the steps of:

- depositing CVD TiN on the entire structure including the via hole;
implementing a plasma treatment process using $N_2 + H_2$; and
repeatedly implementing the deposition process and the plasma
15 treatment process in order to bury only the pores formed on the surface of the
porous film with CVD TiN.

3. The method as claimed in claim 2, wherein the CVD TiN film
is formed in thickness of 10 ~ 20 Å.

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4. A method of forming a barrier metal in a semiconductor device,
comprising the steps of:

- a) patterning a porous film on a base layer to form a via hole;
b) depositing a CVD TiN film on the entire structure including the via

hole;

c) implementing a plasma treatment process using $N_2 + H_2$;

d) repeatedly implementing the steps (b) and (c) in order to bury only the pores formed on the surface of the porous film with CVD TiN; and

5 e) forming a barrier metal on the entire structure including the via hole.

5. The method as claimed in claim 2, wherein the CVD TiN film is formed in thickness of $10 \sim 20 \text{ \AA}$.

10 6. A method of forming a barrier metal in a semiconductor device, comprising the steps of:

a) patterning a porous film on a base layer to form a via hole;

b) repeatedly implementing a process of depositing a MOTiN film and a plasma treatment process so that pores at the sidewall of the via hole are

15 buried; and

c) forming a barrier metal on the entire structure including the via hole.